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FOREST CONTROL

by

CONTINUOUS INVENTORY

"Today I have grown taller from walking
with the trees."

...Karle Wilson

Milwaukee, Wis. January, 1961 No. 82

POOR RICHARD'S ALMANAC

PREFACE FOR 1747

"----If I now and then insert a Joke or two,
that seem to have little in them, my Apology
is, that such may have their Use, since per-
haps for their Sake light airy Minds peruse
the rest, and so are struck by somewhat of
more Weight and Moment. The Verses on the
Heads of the Months are also design'd to
have the same Tendency. I need not tell
thee that many of them are of my own Making.
If thou hast any Judgment in Poetry, thou
wilt easily discern the Workman from the
Bungler. I know as well as thee, that I am
no Poet born and it is a Trade I never
learnt, nor indeed could learn. If I make
Verses 't is in Spight---Of Nature and my
Stars, I write. Why then should I give my
Readers bad Lines of my own, when good Ones
of other People are so plenty---?"

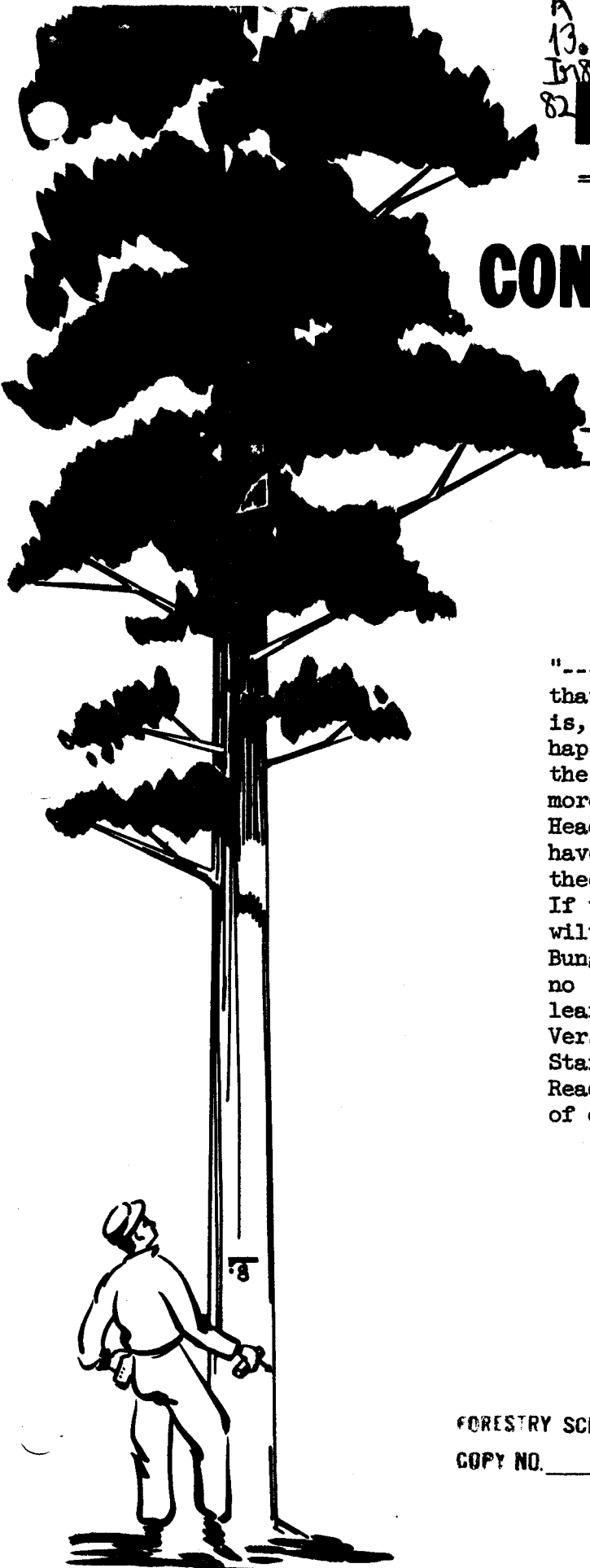
By R. Saunders

alias

Benjamin Franklin

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MANAGEMENT POTENTIAL - A SILVICAL CLASSIFICATION FOR TREES

A new approach to the measurement of forest management problems has been developed recently in the course of this season's CFI jobs. The development consists of a MANAGEMENT POTENTIAL code for trees.

MANAGEMENT POTENTIAL is a measure of the action which should be taken for each individual tree sampled in a forest inventory system. This decision is based on the silvical condition of the tree and its relationship to surrounding trees. It is a useful code to employ at plot establishment time when a measurement of the estimated allowable cut is desired. It is also useful at remeasurement time to determine if growth and allowable cut based on tree condition are somewhat in balance.

Tables of allowable cut may be constructed connecting the individual tree MANAGEMENT POTENTIAL with any of the plot master information covering the silvical or operational breakdowns. In this way both area and volume considerations may be incorporated in the inventory to meet the objectives of intensive management. Consideration of stand operability is not mandatory when determining the MANAGEMENT POTENTIAL of individual trees. Neither is there any mandatory influence exerted by such area condition breakdowns as cutting period, stand size, or density. The immediacy of needed cuts in tracts, stands or forests has no effect on the MANAGEMENT POTENTIAL classification of the tree. Instead, each tree is coded to indicate if anything should be done to it at the present time, and also to tell what it is and why it should be done.

It is important to understand what desirable silvical conditions are needed when applying this code. These conditions may vary from company to company and from inventory to inventory, but the controlling considerations in the application of the MANAGEMENT POTENTIAL code are optimum silvical improvement and desirable stand relationships. It is especially important that the standards of management in the selection forest be well understood so that the trees may be properly classified. Trees coded for removal are those which would be selected for cutting whether the timber on the area is marked or designated for sale.

Detailed description of suggested codes for Management Potential

A. Code to be used in those cases where there is nothing to tally.

CODE 0 - Reserved for code entry on blank plots. At remeasurement time this code is also used for trees that died or were cut or for some reason are not measured at remeasurement time. Every card in an inventory must have a code entry and this code disposes of all those situations where the data are not meaningful.

B. Code to indicate those commercial size trees that would not be cut

CODE 1 - The trees that fall into this group will consist of those species that are handled under a selective type of silviculture or stand treatment. These trees, which must be commercial in size, would not be cut under any condition. They will most always be those that are healthy and vigorous.

C. Code to indicate those tree species handled under clear cutting practices where the condition of the tree does not always determine when an individual tree should be cut.

CODE 2 - This would include healthy and vigorous trees of certain species where the only reason for cutting the particular tree would be a silvicultural recommendation to clear cut the particular area or species within the area. It is intended for good trees of commercial size which could not normally be placed in Codes 3 through 8 and yet which would be cut and contribute to the allowable cut of the ownership if the area were cut over.

By definition, only those species which are being handled under a clear cut type of silviculture could fall in this code. This would most always include healthy trees of aspen, balsam fir, and jack pine and possibly other species such as paper birch and black spruce.

D. Codes for commercial trees to be cut due to their poor condition or position.

CODE 3 - Trees of commercial size to be cut because of insect or disease damage. Indicates the need of an urgent cut. Trees that are definitely threatened or show damage by such pathological organisms as dutch elm disease, oak wilt, spruce budworm, maple blight, jack pine budworm, white pine blister rust, etc. Local conditions will determine the relative importance of various organisms. Common heart rots and sap rots are no concern. The short term disastrous situation is implied here.

CODE 4 - Trees of commercial size to be cut because they are mature or over-mature. May also include "wolf" trees which can be considered mature in many cases.

CODE 5 - Trees of commercial size to be cut because they are poor risk trees. Those trees that have low vigor, poor form, heavy rot, lean badly, contain a weak crotch or have a broken top, etc.

CODE 6 - Trees of commercial size to be cut for either of the following reasons:

- a. Trees existing under undesirable species or species-site relationships. For instance, ironwood trees in a good hardwood stand on a hardwood site might be coded for cut here; scrub oak on a pine site is another example. A tree that is less desirable or less adaptable to a site than other more favored species would receive this code.
- b. Trees to be cut to reduce basal area. This would include reasonably good trees to be removed in a commercial thinning of a heavy density or stagnated stand. The removal of certain trees in a clump of sprouts.

E. Codes for non-commercial trees that should be cut or otherwise eliminated.

CODE 7 - Trees that should be cut or deadened for sanitation purposes. This includes trees that are cull due to excessive rot or extreme crook. Also a particular species of any size (may or may not be cull) with no current commercial value (such as Crataegus, Blue Beech, Pin Cherry, etc.).

CODE 8 - Any tree of commercial species that should be removed but is non-commercial due to being sub-merchantable. This would include a small diameter, one stick pulp tree where 2 sticks is the minimum merchantable length generally expected to be cut. Also includes 6 foot sawlog lengths where the minimum length accepted is 8 feet.

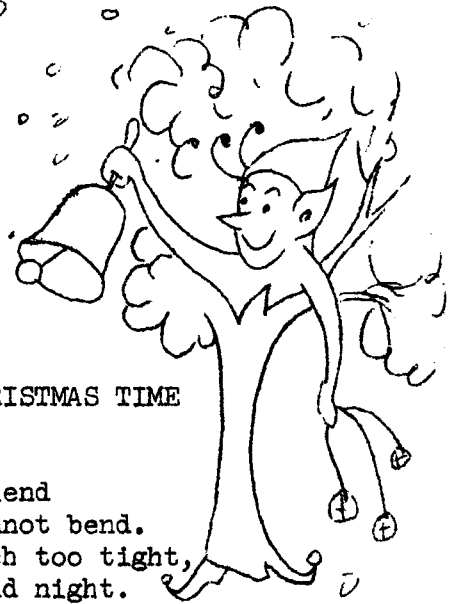
F. Code for sub-merchantable size trees of any commercial species that would not be cut.

CODE 9 - The trees included under this code are those that should not contribute to the allowable cut volume of an ownership. They are of such a size that they would be considered sub-merchantable. They are small, healthy trees. They may be of any species and could be found on any area. They are good trees too small to be considered for cutting.

Trees that could be classified under more than one of the coded designations are tallied with the lowest numerical code. For example: if it is a poor risk tree (due to rot) and yet has an apparent insect attack, it is coded 3 in preference to 5.

Determination of MANAGEMENT POTENTIAL in any CFI survey requires that the cruiser do a great deal of thinking about what to do with many trees growing under many different forest conditions. He becomes most cautious in the selection of the category in which he places the tree, and develops as a result, a sound philosophy of tree marking and stand improvement. He works in contrasting timber types and varying forest conditions and combinations in the course of a relatively short span of time. This gives him a broad, but also an exacting, outlook on the selection of the timber, trees, and stands to be cut. The knowledge he gleans in the course of the survey helps him develop a set of guidelines that become quite valuable during the operational phase of his field work. The information he collects becomes a helpful, living part of the many sheets of tabulated facts from the CFI survey. Arranged in simple, tabular form, the answers give the forest manager an intimate and immediate picture of his management problems. They have been used in many ways and more ways are constantly turning up. Next month's issue of the newsletter presents an example of this use in the form of a simplified CFI process.

George Semmens
Forester
U. S. Forest Service, Region 9



FOR THE LITTLE SPROUTS AT CHRISTMAS TIME

I have a tall, old, shady friend
Whose back is so stiff he cannot bend.
His great gray coat seems much too tight,
Zipped up tip top both day and night.

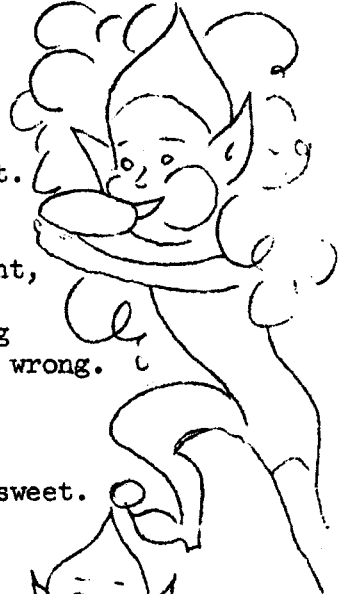
My friend's arms stretch far, far above.
They touch the sky, and I should love
To do so too some day when I
Grow big enough to reach and try.

Down on my good friend's bottom end,
Deep in the ground he does depend
On anchored feet to stand up straight.
He goes no where so he's never late,

Just stands there in the dark or light,
A perch for all the birds in sight.
And when the wintry winds blow strong
He moans as though there's something wrong.

A sour old, grumpy one is he,
And his heart beats, oh so silently.
But his boiled down sap is nice and sweet.
It makes my pancakes good to eat.

By now I think you surely know,
In summer, spring or falling snow,
This kind of friend who plays with me
Is Mister Sugar Maple Tree.



THE U. S. BUREAU OF INDIAN AFFAIRS PRESSES FORWARD

Clarence Eggen, Forester in the Regional Office of the U. S. Bureau of Indian Affairs in Minneapolis, visited with us briefly one day last week. Clarence had just completed a period of work in the Service Bureau Corporation of Milwaukee, putting the finishing touches on what is now the best set of machine specifications for CFI cases in the Region. Already applied in somewhat less polished form to three previous inventories, it is expected the new "specs" will reduce costs and increase efficiency in prospective data processing. Eventually the Forest Service will secure a set of these sheets, and with the permission of the Indian Service, duplicate a few copies to be sent out as loaners to interested companies and States.

This work on the improvement of machine specifications was done in cooperation with Gene Horn, Methods Supervisor of the Milwaukee office of the Service Bureau Corporation.

What a wealth of time could be saved if all companies standardized their card fields and machine approach to agree with this expertly prepared set of sequential steps.

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Companies planning large scale remeasurement of plots in 1961 cannot wait too long to plan their projects and order their port-a-punch cards. The flow chart should also be reviewed and modified, and specifications prepared for the machine work. We have time to work cooperatively on this before March 15.

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RE-RUN OF BARTON'S BOOKLET

"A METHOD OF CONTINUOUS FOREST INVENTORY FOR MANAGEMENT," by William Warren Barton, Division of State and Private Forestry, Region 7, is again available in limited quantity.

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THE WORK PILES UP, BUT NIGHTS ARE LONG IN THE NORTH

It is a great pleasure to work this week and next with a public forest land manager. Lloyd Leppanen, Forester for the Gogebic County Forest in western Michigan, is with us. By the time this goes to press George Semmens and Forester Leppanen will have completed the spec sheets and begun the computations at the SBC. There are 8,000 tree detail cards to be processed. Semmens reports that the new model U.S.B.I.A. specifications just completed have been a great help in the preparation of the specs for this north country case.

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POUR OFF THE OIL, SAYS GEORGE DRIVAS OF RIPCO

Rhineland Paper submits a proposal to one and all. Spurred by the experiments of their capable cruiser-land surveyor, George Drivas, the company has established a new paint numbering policy for the 25,000 trees in the 1,000 CFI plots they will have by 1962. Here are the words of Forester King Sheldon, on the steps leading up to the new policy.

In 1956 when Ripco started CFI, the best grade of outside white paint was used. Mixed thoroughly and applied with Eagle Oiler spray guns, the paint ran and the numbers were messy and thin. After considerable thought about this problem Drivas poured off a large part of the surface oil, replacing just enough to give the paint a shaving soap lather consistency. This thick paint worked fine in the gun, it made a thick heavy bead on the tree, and the numbers and marks look neat. The soft numbers expand somewhat with the growth of the tree, there is much less mess and splatter, and best of all, the thick paint numbers promise to last much longer than the thin ones. Today they are much better than thin paint numbers equally old. Sheldon suggests that you buy your paint six months early to insure complete settling before using, and then give this method a try since it is sure to be a worthwhile economy in the long run.

SPECIAL NOTE

A FEW CRUISER TO THE KING SHELDONS. GIVEN THE NAME OF KEITH GEORGE, he was born December 5 in the City of Rhineland, Wisconsin, and brings much joy to his parents and brother and two sisters.

"No wonder a new-born baby cries. It is naked, hungry, and already owes the government \$1700. "Dooley," in the Pierce County Herald, Wis.

STOTT GOES TO ST. PAUL JUST BEFORE CHRISTMAS

The Lake States Forest Experiment Station has called a limited meeting for the review of Forest Survey Plans. The problem is to secure adequate answers for large areas of land and forest. Though not commonly realized, this objective is in considerable contrast to the special management control information desired by the CFI forester. Under consideration at this meeting is the second coverage of the 36 million acre area which is the State of Wisconsin and its variable forests and wild areas.

WE WORK WITH GEORGE BANZHAF AND COMPANY - CONSULTANTS

The Forest Service is assisting with various stages of two permanent inventory projects with Forester Don Pallin of the George Banzhaf Company of Milwaukee, Wisconsin. Machine work on one of these cases will be handled by Pallin and Semmens the week before Christmas. A revision of the spec sheets for this work was begun this week by Pallin and Stott.

It is interesting to work with consultants and to note the similarity of problems confronting both private and public consulting organizations; problems seldom faced by public or industrial foresters. The average consultant is doing a great deal to further the sound tenets of the profession, and in all fairness this must some day come to be more fully recognized and accredited.

CONSULTING FORESTER JAMES METEER ON THE MUSKINGUM PROJECT

Muskingum Conservancy District in Ohio has men out braving the wintry winds to remeasure 400 CFI plots after an interval of 5 growing seasons. Under the cooperative direction of Forest Consultant James Meteer, of Wooster, Ohio, who also assisted with the project establishment in 1955, many interesting growth and mortality records are being collected. The computing for this case will be done during March in Milwaukee, Wis.

What a great difference there is between advising and assisting.

A REMINGTON-RAND PROJECT AGAIN IN THE OFFING

King Sheldon, field-going Forester for the St. Regis Paper Company, Rhinelander, Wisconsin, worked with us three days in early December. It was good to renew again our association with the company. We enjoyed the cooperative review of the machine plans, and look forward with enthusiasm to a remeasurement of the CFI plots on the southern unit near the plant. The work is tentatively planned for the fall of 1961. Mr. Sheldon will return again this week for a brief review of his rewritten machine specs and a discussion of the cubic foot and cordwood volume tables.

Every tree has four full faces. The best cruisers scan each one of them when the tree is a unit record in a continuous inventory process. Crown and trunk, grade, length and cull need a four-sided examination in CFI.

THE CUBIC FOOT VOLUME TABLE WITH CORD CONVERTORS

A test of the original and the new cordwood volume tables prepared for CFI in this Region, has been made by Ripco. The difference in cord volume on almost 20,000 pulpwood trees amounted to 9 percent. The new table is higher than the old.

Prepared under the guidance of William Barton of the Philadelphia office of S&P Forestry, the new table closely follows Table 6 in LSFES Bulletin #1104, and is thus considered to be most reliable.

WE QUOTE FROM

"WINTER CHANGES IN TREE RADII AND TEMPERATURES"

BY

JOHN A SMALL AND CARL D. MONK

"The radial change (in tree diameter due to low temperatures) was interpreted as a physiological phenomenon of exosmosis resulting from freezing in the intercellular spaces, which produces an overall contraction in tree radius."

MARATHON PAPER COMPANY REVIEWS AND PERFECTS
DATA PROCESSING PLANS

GENE MEYER, Forester in charge of data processing and inventory for the Marathon Corporation, came to Milwaukee this month for a quick review of the computing plans. Some improvements were made in the machine specifications, and a smooth and orderly processing of the season's CFI data at the company's Menasha, Wisconsin office is assured. The computing and accounting division of the company has been most generous and helpful in this work over the past several years.

THE COPPER RANGE COMPANY CARRIES ON

WILL WAARA, Forester for Copper Range Company in Houghton, Michigan, has high hopes of finishing 620 inventory plots on 184,000 acres of company land before growing season starts May 15, 1961. Plot taking is weary work in the winter, Will, and the men will need checking.

INDIANA STATE AGAIN IN THE CFI NEWS

WALLY HANSON and DON McGUIRE spent a few days in Milwaukee late last month, making preliminary plans for a complete CFI coverage of the Indiana State Forests. Field work will soon be underway. It is the hope of all that the data processing will be accumulated for all of the separate forests, and handled at one time in the office of the SBC, Milwaukee, Wis. This is an economic procedure heartily recommended to every one.

MORTON ARBORETUM PLOTS REMEASURED AFTER 9 YEARS

Established for endless record keeping in forest tracts which will never be cut over, these 34 hidden plots with unnumbered trees promise to provide interesting control data in oak forest areas. Set out and remeasured by a one-man crew, these permanent plot and tree records, first mark sensed, and later port-a-punched, offer proof that CFI, in local areas where working hazards are not great, is essentially a one-man job.

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NO DISENCHANTMENT WITH CFI IN REGION 9

GEORGE SEMMENS and CAL STOTT have an extremely busy winter ahead on machine work and plans, and there is no time to relax. Every stage of the five-stage service given through the Forest Service by these men will be in progress.

1. Three field projects will be in action during the winter.
2. Field and machine plans, including flow charts and spec sheets, will be prepared and improved with several companies.
3. There will be three or four cooperative data processing jobs.
4. Organizing plans for three or four remeasurement projects will be undertaken.
5. There will be participation in the analysis of results of CFI cases with several companies.

By the time field season 1961 arrives, it should be a great relief to get back into the woods again.

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MANAGEMENT POTENTIAL CODES

Watch for a forthcoming newsletter explaining George Semmens' new management control codes for CFI cases. Under study during the past year, and applied in several cases during the field season, this tree classification scheme promises to be most helpful in the regulation of the cut. First listings of this material will be made next week for the Gogebic County Forest.

CAL STOTT
Forester
U. S. Forest Service, R-9